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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,038	11/13/2001	Ik-Soo Kim	8733.537.00	6592

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT PAPER NUMBER

2871

DATE MAILED: 03/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/987,038

Applicant(s)

KIM ET AL.

Examiner

Tarifur R Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-28 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

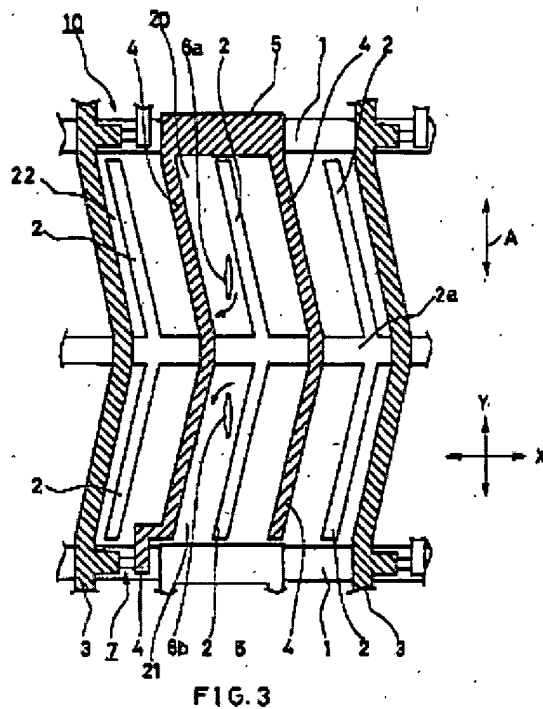
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1-3, 8, 12 and 16-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asada et al., (Asada), USPAT 5,745,207 in view of Lee et al., (Lee), USPAT 6,466,289.**

5. Asada discloses and shows in Fig. 3, an array substrate for an in-plane switching liquid crystal display device comprising:

- a substrate (10);
- a gate line (1) and a data line (3) on the substrate, the data line having at least one bent portion;



- a thin film transistor (7) at a crossing portion of the gate and data lines;
- a plurality of common electrodes (2) having at least one bent portion;
- a common line (2a) connected to the common electrodes (2); and
- a plurality of pixel electrodes (4) alternated with the common electrodes, each pixel electrode having at least one bent portion.

Asada further shows in Fig. 4 that the common electrodes and the pixel electrodes have substantially zigzag shape

Asada also discloses that the display device also includes a gate insulating layer and a semiconductor layer (col. 5, lines 28-56). Further, forming a passivation layer over

the data line and source and drain electrodes is common and known in the art and thus would have been obvious to obtain a flat surface.

Asada differs from the claimed invention because he does not explicitly disclose that at least one of the common electrodes overlap the data electrode.

Lee discloses an in-plane switching type liquid crystal display wherein at least one common electrode overlaps the data line. Le also shows in Fig. 2 that the data line (60) is formed on a layer above the common electrode (12) and the gate line is formed on a same layer as the common electrode. Lee further discloses that such an arrangement is advantageous since it will prevent the light leakage near the edges of the pixel region and will increase aperture ratio of the LCD (abstract).

Lee is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to have at least one common electrode overlapping the data line.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of Asada by arranging the common electrodes in such a way that at least one common electrode overlap the data line so that light leakage near the pixel region is prevented and aperture ratio is increased, as per the teachings of Lee.

Further, as to claims 20-22, since the method of fabricating the array substrate is a list of forming each component and each component must be formed to make the device, the method of manufacturing would be inherent to the device.

Further, the limitation such as forming the common electrode on a layer above the data line is an obvious variation of forming the data line on a layer above the common electrode and thus would have been obvious.

*Note: If applicant disagree with examiner's analogy, applicant is respectfully remained that a restriction requirement might be proper.*

Accordingly, claims 1, 8, 16-18, 20-22 and 24-28 would have been obvious.

As to claims 2 and 19, Asada shows in Fig. 3 that the liquid crystal display device further comprising a pixel line (5) extending along a direction of gate line (1) and connected to the plurality of pixel electrodes (4).

As to claims 3 and 23, Asada discloses that the common electrode (2) is made of a non-transparent material (col. 3, lines 23-24).

As to claim 12, forming common electrode with a transparent material is common and known in the art and thus would have been obvious to avail a proven material.

**6. Claims 4-7 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asada in view of Lee as applied to claims 1-3, 8, 12 and 16-28 above and further in view of Jun, US 2001/0040663.**

7. Asada differs from the claimed invention because he does not explicitly disclose that pixel line overlaps the common line.

Jun discloses an in-plane switching type liquid crystal display wherein the pixel line overlaps the common line (Figs. 1 and 2). Jun also discloses that such an arrangement is advantageous since it forms a storage capacitor and thus reduce crosstalk (page 2, paragraph 0028).

Jun is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to overlap the common line and the pixel line.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of Asada when modified by Lee such that overlap the common line and pixel line so that crosstalk is reduced.

Accordingly, claims 4, 5 and 13 would have been obvious.

As to claims 6 and 14, Asada shows in Fig. 3 that the pixel line partially overlaps the gate line.

As to claims 7 and 15, using indium-tin-oxide to form pixel electrode is common and known in the art and thus would have been obvious to avail a proven material.

#### ***Allowable Subject Matter***

8. Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10 and 11 are objected due to their dependency.

#### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

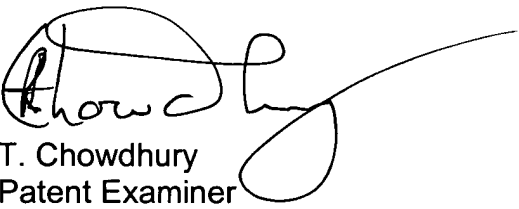
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 305-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



T. Chowdhury  
Patent Examiner  
Technology Center 2800

TRC  
March 17, 2003